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Disclaimer

Disclaimer for All Information on Dental Cavitations and NICO and Jawbone Osteolytic contained in this page:

I am reporting on what I learned from the resources I reviewed while seeking resolution to my medical condition. (Extensive study for 4 years. See bio.) It is important for anyone reading this page that they understand that they are responsible for doing their own research and understanding whether it could potentially benefit them and their health conditions.

Due to the extra-ordinarily bad dental care we have in the United States, and the apparent lack of recognition by the medical profession of how dental affects overall health, it feels that citizens like me are forced to be their own advocate and researcher to protect their vitality.

The compiled information on this page is not intended to treat, diagnose, or inform any patient about a potential diagnosis or treatment. The effectiveness of cavitation surgery varies from patient to patient and is not without risks. All surgical treatment poses risks to the patient and should be considered and discussed in detail between the treating dentist and the patient.

History and Definition of Cavitations (Osteo-Necrosis)

A cavitation is a jawbone abnormality typically found in the bone around previously extracted teeth, and most often occur around wisdom tooth extraction site(s). Following the extraction, the jawbone doesn't heal properly and the bone doesn't form normally. A dental cavitation may appear as a hole in the bone or a more hollow area in the jaw where normal bone should be present.

You might think it's bad enough to think about having neurotoxic bacteria, fungus and other unsavory creatures swimming in the open spaces between your teeth and gums, but there actually is one thing FAR worse; cavitations (also called osteomyelitis, osteolytic, or a "hole in the bone").

Cavitations are exactly what they sound like they are: a hollowed-out area or hole – and in this case, a cavern occurs when all too active bacteria has successfully departed the original post-surgical site and has somehow begun to impress itself into the actual jawbone.

Every additional hole created by this process is filled with decaying bone and tissue that leaves behind an ever greater potential for bacteria (and their unsavory cohorts and associated neurotoxins) to flourish and grow. Eventually, this caustic soup of poison leaks into the bloodstream, where it can cause or exaggerate other existing health issues in the body.

In no other bone is the potential for trauma and infections as great as in the jawbones. There is a very strong link between jawbone disease and the overall health of the individual. Awareness is increasing for individuals suffering from unexplained chronic systemic conditions such as diabetes and cardiac disease.

There are dozens of names referring to the death of the jawbone starting in 1867 with necrosis of the bone. (See Appendix for a list of all known related terms.)

Diagnosis

Most cavitations are not painful, and as a result, one should never assume that the disease process does not exist. There are many disease processes that are difficult to diagnose, and many that are not painful. If we used pain as an indicator for treatment, periodontal disease, diabetes and most cancers would go untreated.

Visual Appearance and Biopsy

(See treatment protocol section, “Lab Biomarkers & Visual Appearance of Biopsy”, to avoid repetition)

Imaging

The importance of getting a 3D Conebeam scan cannot be overstated, as it is the only diagnostic tool to identify root canal infections, titanium implant failures, dental cavitations, sinus abnormalities, abnormal bone grafts and other pathological processes which CANNOT be identified on xrays, PAs or 2D panos.

Most jawbone cavitational lesions are difficult to diagnose with routine radiographs (Xrays). Xrays are 2 dimensional which causes superimposition of anatomical structures that masks the area of interest. Research indicates that 40% or more of the bone needs to be altered to show changes on an Xray.



The above image shows you how inadequate Xrays are in detecting an infection in the jawbone.

It is important to note that pre-treatment of this infection is extremely necessary because of how virulent these infections can be. They often harbor not only bacteria, but also viruses and parasites. Those odds increase with length of the infection.

This is dangerous to the patient, physician and any else coming into contact with the contents of an infected jawbone.

Below is an image of my CBCT which is far more revealing of the disease process than any XRay could ever provide.



Diagnosis requires advanced imaging techniques such as CBCT, Tech 99 scans, magnetic resonance imaging (MRI), or trans-alveolar ultrasound sonography (CaviTAU™®)

A CBCT is the current standard of care tool that can identify jaw bone abnormalities by examining each cross-section millimeter by millimeter of the affected infected jaw cavitation area across 3 axis. The reviewer can observe changes in bone density fluctuations, tissue changes and adjacent anomalies such as infected root canals.

Diagnosis is primarily with CBCT (Cone Beam Computed Tomography) which is a 3 dimensional image. CBCT images aid in determining the contents of a lesion (fluid-filled, granulomatous, solid, etc.), possibly helping to distinguish between inflammatory lesions, odontogenic or non-odontogenic tumors, cysts, and other benign or malignant lesions.

This CBCT MUST be interpreted by someone experienced in both radiological interpretation of the jaw bone cavitation but also experienced in the surgery itself. Ideally, the dentist diagnosing is not just a holistic dentist, but specifically, a holistic dentist who ALSO performs the surgery for dental cavitations. Oftentimes, a holistic dentist who does NOT do the surgery but does diagnose lesions may actually MISdiagnose a patient since its difficult to understand radiological findings without experiencing them in surgery.

To summarize, CBCT has proven useful in the diagnosis and treatment of jawbone cavitations by:

- Identifying the size, extent and 3-D position of a lesion;

- Identifying the proximity of a lesion to other nearby vital anatomical structures such as the inferior alveolar nerve, maxillary sinus, or adjacent tooth roots;
- Determining the treatment approach: surgery versus non-surgical; and
- Providing a follow-up image to determine the degree of healing and the possible need to re-treat a lesion.

(I would like to add a section here about portability and control of imaging. Instructions to assure the patient can control / retain their imaging for comparison.)

Recently developed software that is specifically integrated with different types of CBCT devices utilizes Hounsfield units (HU) which allows for a standardized assessment of bone density 15,32. HU represent the relative density of body tissues according to a calibrated gray-level scale, based on values for air (-1000 HU), water (0 HU), and bone density (+1000 HU).

An ultrasound device called the CaviTAU™®, has been developed and is being used in parts of Europe, specifically for detecting low bone density areas of the upper and lower jawbones that are suggestive of jawbone cavitations. This trans-alveolar ultrasonic sonography (TAU-n) device is potentially equal in comparison to CBCT in detecting jawbone marrow defects, and has the added benefit of exposing the patient to much lower levels of radiation. This device is currently unavailable in the U.S. but is under review by the FDA.

Other less popular/effective assessment options are Thermography and Acupuncture Meridian Assessment.

Thermography

Another tool that is used BEFORE an official diagnosis by a holistic surgery dentist is Thermography, which is a pre-diagnostic tool that can help identify areas of ischemia in the jaws and lymphatic abnormalities, which can lead patients to explore whether they actually have dental cavitation by seeing the holistic dentist. Many patients ask about the Cavitat, and sadly, the Cavitat was removed from the USA market by the FDA in 2016 after lawsuits claiming it cannot be a dependable diagnostic tool. Old cavitat machines are far and few between today, and are difficult to find in holistic offices. Because they are not supported and are out of date – its currently not a primary tool for diagnosing dental cavitations and any results should be corroborated by a legitimate 3D dental scan cone-beam and interpreted by a qualified surgical holistic dentist.

Acupuncture Meridian Assessment

As an adjunct applied kinesiology (AK) or muscle testing can be used as well to determine which meridians are impacted by the infection.

Risk Factors and Causation

Why Do Dental Cavitations Develop?

As the disease progresses the bone dies, thus the term Osteo-Necrosis is often used. To better understand this process think of a frostbitten toe during a hike in the snow; the toe is purple because it lacked blood supply thereby resulting in cellular death. If the toe dies, amputation is required to prevent gangrene or even worse, sepsis.

The jawbone naturally has lower blood flow than the rest of the body which is likely due to an inherent intelligent design given the wide variety of food that enters our mouth over a lifetime. When any external force modifies the structure by breaching natural barriers, it is more difficult for the body to heal the jaw than when this occurs in other body parts.

In very simple terms an irritant breaches the gum barrier (ie any foreign object or dead tissue). Low blood flow already exists in this environment and blood flow is reduced further either by infection, medication like bisphosphonates, anesthesia containing lidocaine or epinephrine and even radiation.

With limited blood flow, precious blood and its nutrients (the immune system) is not able to reach the affected area of the jaw. This creates an environment where bacteria feasts on existing cellular structure and consequently destroys bone and blood supply to the surrounding bone. This can evolve into a generalized necrosis that can turn into systemic issues, such as gangrene and sepsis.

Infection spreads over time and with time becomes more virulent, which makes early detection vitally important to protect overall health and vitality.

Where Does The Bacteria Come From?

- **Tooth extractions: Bacteria** During tooth extraction surgery (wisdom teeth included), the bacteria is not properly neutralized or adequately flushed out after an oral surgery or extraction. Once the traditional dentist sutures the extraction site, the bacteria multiplies and makes its way into the bone, where it begins its onslaught of destroying tissue and bone. Once trapped inside the post-surgery cavity these bacteria can incubate for years, potentially releasing toxic infection residue [bacterial debris and tissue waste (necrotic cells)] into the blood, circulating through the circulatory system and ultimately negatively impacting all the cells of the body. This of course can cause a host of health issues, both local to the jaw and other areas of the body that we often observe for those patients positively diagnosed.
- **Tooth Extractions: Periodontal Ligament** While this remains controversial, it is the belief of some oral physicians that upon extraction of a tooth, if the periodontal ligament is not removed along with the tooth, it can cause abnormal healing, which results in abnormal tissue and is more likely to develop bacteria. The periodontal ligament supplies the tooth with blood and serum, and upon removing the tooth, the periodontal ligament will die and resorb. However, when the body rejects the left-behind periodontal ligament, infection can occur. This scenario

can happen under what dentists consider the “normal” extraction situation: the tooth is removed but the ligament that holds the tooth in place is left behind and the area isn’t properly cleaned, and consequently toxins remain within the ligament that slowly seep into the body, potentially creating chronic health issues and other symptoms most doctors can’t diagnose (such as fibromyalgia, heart issues, endocrine issues, neurological issues, among others).

- **Root Canal Infections:** Root-canaled teeth no longer have an active blood supply, and in the biological and holistic communities, are referred to as “ischemic teeth” or “necrotic teeth” because essentially the tooth is a dead appendage due to lack of blood supply. Depending on the strength of the individual’s immune system countered by oxidative stress on the cells and overall biological disease processes, individuals can develop secondary infections underneath root-canaled teeth. Root-canaled teeth with no dynamic pain receptors are especially dangerous because, typically the individual does not feel any pain or discomfort until the infection is so large that it can spread to the adjacent teeth, tissues and bone can develop a massive abscess (pus filled infection). The infection in a root-canaled tooth can also move vertically into the bone, with the bacteria “eating away” all tissues in its path, regardless of direction. While this process doesn’t happen overnight, once the infection has moved into the jaw bone, the patient may still not experience acute discomfort and only may exhibit symptoms of overall health decline.
- **Overuse of Poorly Chosen Local Anesthetic:** Dentists should be EXTREMELY selective about the anesthetic he used and most notably, rarely uses local anesthetic with epinephrine. Epinephrine, is a vasoconstrictor and therefore reduces blood supply to the anesthetized area during surgery. The biological system NEEDS blood flow for healing and tissue regeneration. By stifling blood flow, some dentists are risking reducing the blood supply by such a degree that the result is “ischemia” which is “lack of blood flow.” Like the brain or any other part of the brain, without blood flow, there is no oxygen delivered to the cells, and without oxygen, our cells, like our brain, will begin to die. Shorter half-life anesthetics like Carbocaine (Mepivacaine) and Prilocaine (Citanest) are epinephrine free. While epinephrine-free anesthetic made surgery messier as they do not reduce the flow of blood to the surgical sites, in biological surgery, that is precisely the desired effect – increased blood flow to the surgical site to heal trauma and prevent or treat cavitation lesions. While cheaper local anesthetics like lidocaine can be purchased and used without epinephrine, the toxic byproducts formed by use of lidocaine are considered undesirable relative to other local anesthetics and thus avoided by the best biological dentists like during surgical processes. By using shorter acting anesthetics with lower toxic byproduct creation and avoiding the use of vasoconstrictors like epinephrine, a biologic dentist is able to not only avoid the formation of ischemia in patients and also reverse and regenerate the disease processes such as cavitations in the jaw.
- **Infection & Lowered Immune System: Bugs** In addition to bacteria and infections arising from necrosis (a byproduct of several items on this list) other systemic secondary co-infections can thrive in the ischemic bacteria rich environment. It has been documented in many surgeries

that resolve cavitations, that upon surgically opening up the “festering hole in the jaw” oral physicians have observed other harmful elements including viruses, fungi and parasites which were also verified by biopsies. This complication can potentially be due to the lowered immune response, as the body is already embroiled in trying to fight against the chronic jaw bone infection. The immune system cannot keep up fighting the opportunistic pathogens and therefore an overgrowth of fungi, viruses and parasites can occur in addition to neurotoxic bacteria. During such complications, it has been documented that bacteria from within the cavitation site may produce very strong chemicals that are highly neurotoxic. Research has shown these toxins can then combine with chemicals or heavy metals, such as mercury, and form even more potent toxins. These neurotoxins can over time be released into the bloodstream where they destroy many otherwise critically important enzymes within the body.

- **Low Vitamin Levels, Ineffective Immune Systems, Lyme Disease:** With the inability to form healthy bone, strong angiogenesis (vascularization development) and overall low ability to heal and defend against inflammation, creates the perfect opportunistic environment for cavitations to form where the wisdom teeth once grew. After the wisdom tooth extractions, which are often complicated by use of strong ischemia causing drug like lidocaine with epinephrine and conducted at inappropriate ages, a low vitamin D3 combined with the inability if the body to heal is the potential to help establish the very problem we aim to treat, ischemic bone disease which becomes a chronic source of infections, disease and malaise for patients. In addition, with such high diagnosis rates of Lyme Disease and various other Borrellia infections, it has been observed that the Borrellia virus tends to live and proliferate locally in the in the areas of cavitations due to limited blood flow.

Other notable risk factors

- Cigarette smoking
- Osteomalacia
- Thrombocoagulathies
- Anti-phospholipid syndrome (uh right... emfs again)
- Cemental tears (?! this is a new one)
- Cancer (prostate, GI, renal, breast)
- Dengue fever
- Sickle cell anemia
- Anemia
- Reduced immune function
- The SSRI Fluoxetine (Prozac) directly inhibits osteoblast differentiation and mineralization
- *Bisphosphonates (class of potent pharmaceutical drugs used to inhibit bone resorption)
- EMFs
- Mercury fillings
- Certain medications (bisphosphonates)
- Genetic predisposition?

* Such cases involving bisphosphonates not only involve the cancellous bone, but also the cortical bone, leading to some of the cortical bone being exfoliated through the oral mucosa

In the jaws NICO can be complicated by the presence of chronic infections that can be related to periodontal and dental infections, including chronically infected root-canaled teeth. The fact that the jaws contain branches of the 5th cranial nerve (trigeminal nerve) is also a situation unique to the jawbones. The frequent use of local anesthetics and specifically nerve blocks with high concentrations of vasoconstrictors (drugs that shrink blood vessels, specifically epinephrine found in most dental anesthetics) can also exacerbate the problem, in addition to the use of other pharmaceutical drugs such as corticosteroids. Toxins such as heavy metals (lead, mercury, nickel, cadmium) and acetaldehyde are contributory factors and trauma in any form can also play a role.

What If Cavitation Surgery Does Not Occur? (More Risks)

Pub-Med Research and the Systemic Links

To help reviewers of this topic understand the gravity of dental cavitations are, links to PUB MED articles are provided that demonstrate how serious and debilitating it can be.

These articles are provided by very reputable doctors and scientists who explore the detrimental effects of dental cavitations if left untreated.

A typical and very serious bio-marker is a 30 fold increases in RANTES, a regulated-on-activation normal T-cell expressed and secreted is a chemotactic cytokyne that plays a key role in recruiting immune cells to inflammatory sites. (*See the treatment section, "Lab Biomarkers and Visual Appearance of Biopsy" for more info on RANTES.*)

Theses are a few selected samples of hundreds of articles in PUB MED:

Neuralgia-inducing cavitation osteonecrosis (NICO). Osteomyelitis in 224 jawbone samples from patients with facial neuralgia
<https://pubmed.ncbi.nlm.nih.gov/1545963/>

Long-term effects of jawbone curettage on the pain of facial neuralgia
<https://pubmed.ncbi.nlm.nih.gov/7699492/>

Neuralgia-inducing cavitation osteonecrosis in a patient seeking dental implants
<https://pmc.ncbi.nlm.nih.gov/articles/PMC3513818/>

Systemic and Clinical Implications

The vast majority of people seeking to discover whether or not they have cavitations are those also suffering from other chronic health issues. It is the overriding health condition that has brought them back to the dentist seeking ways to cut down on potential toxins flowing into the bloodstream.

Although cavitations can go undetected for years in an otherwise healthy person, jaw pain sometimes occurs in patients suffering from bone lesions and sometimes jaw pain will manifest after a sinus infection, which can then also lead to the discovery of a cavitation.

About Treating the Symptoms and Not the Cause

Like osteoporosis, Ischemic Bone Disease is frequently not diagnosed and even less frequently treated. In many instances it is the symptoms of IBD that are treated rather the disease process itself and its causes. For example a patient with cavitations in the lower jaw may experience atypical facial pain (pain of an unknown origin) and will be prescribed medication for the pain. Another patient with a tooth located in bone tissue with cavitations may experience pain in that tooth because of pulpal ischaemia (ischemic pulpitis) and endodontic therapy (root canal treatments) will be performed to removed the inflamed pulp. In other cases antibiotics may be prescribed with temporary relief, as this does not treat the underlying issue of dead tissue and anaerobic bacteria present and festering in the jaw bone.

In order for you to understand that dental cavitations are real (published on PUB MED) in numerous articles and actually affect the body seriously and in many unpredictable and debilitating ways, here is a snap shot of a few articles by doctors and scientists exploring the detrimental effects of dental cavitations if left untreated, including the 30 fold increases in RANTES, a regulated-on-activation normal T-cell expressed and secreted is a chemotactic cytokyne (read: inflammation!) that plays a key role in recruiting immune cells to inflammatory sites.

About Coagulation

Four out of five jawbone cavitation patients have clotting factor problems. (coagulation problem)

Bone is particularly susceptible to this problem of hypercoagulation and develops greatly dilated blood vessels; increased, often painful, internal pressures; stagnation of blood; and even heart attacks.

Regardless of the underlying cause of hypercoagulation, the bone develops either a fibrous marrow (fibers can live in nutrient starved areas), a greasy, dead fatty marrow (“wet rot”), a very dry, sometimes leathery marrow (“dry rot”), or a completely hollow marrow space (“cavitation”).

Lab Biomarkers and Visual Appearance of Biopsy

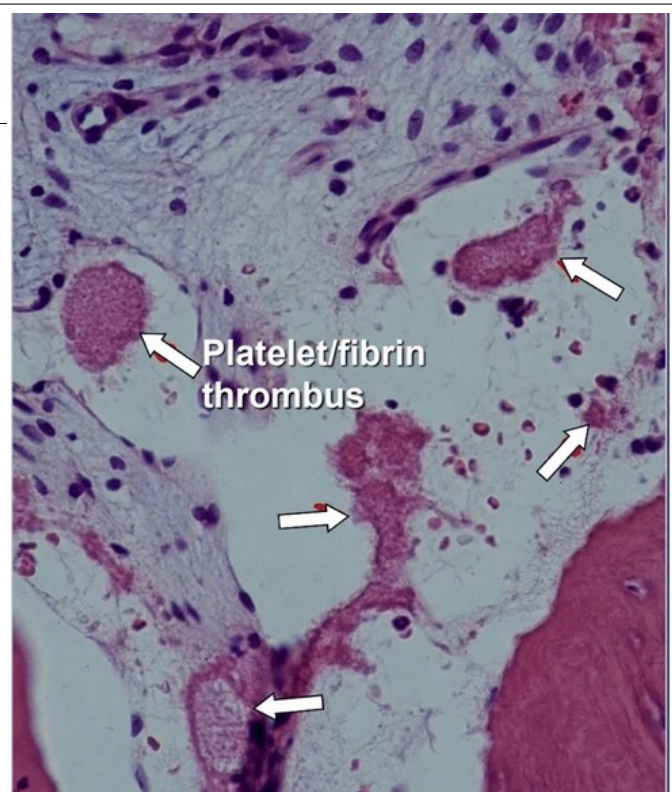
A biopsy to confirm diagnoses of any jawbone pathology and rule out other disease states is desirable.

Visual Appearance of Biopsy

(Please speak about the difficulties with biopsy prior to surgery or during. And explore effort to over-come that.)

Appearance varies:

- Over 75% of lesions are completely hollow or filled with soft, grayish-brown and



demineralized / granulomatis tissue, often with yellow oily material (oil cysts) found in the defective areas with surrounding normal bone anatomy.

- Others report the presence of cavitations having varying overlying cortical bone density that upon opening, appear to have linings with fibrous black, brown or grey filamentous materials
- Still others report gross changes variously described as “gritty”, “like sawdust”, “hollow cavities”, and “dry” with occasional sclerotic, tooth-like hardness of the cavity walls

Upon examination, these lesions appear similar to the necrosis that occurs in other bones of the body and are different from osteomyelitis. *(Uhm... really how/ why?)*

Lab Biomarkers

(I would love to see this section reworked.) (Bacteria classification, virulence correlation with time) - The whole section on labs is difficult to appreciate. Further there is zero mention on the bacteria found or the issues to overcome with taking samples to assess the infection.

Four out of five jawbone cavitation patients have clotting factor problems. (coagulation problem)

When compared with healthy jawbone samples, cavitation pathologies continually show a strong upregulation of fibroblast growth factor (FGF-2), Interleukin 1 receptor antagonist (Il-1ra), and, of particular importance, RANTES.

RANTES (aka CCL5 (c-c motif Ligand 5) has been described as a chemotactic cytokine with a strong proinflammatory action.

Studies have shown RANTES to be implicated in many systemic illnesses such as arthritis, chronic fatigue syndrome, atopic dermatitis, nephritis, colitis, alopecia, thyroid disorders and the promotion of multiple sclerosis and Parkinson’s disease. Further, RANTES has been shown to cause an acceleration of tumor growth.

In asymptomatic jawbone cavitations cases which comprises the majority of cases, acute pro-inflammatory cytokines such as TNF-alpha and IL-6, are NOT seen in increased numbers in the pathohistological findings of cavitation samples. In these patients, the absence of these pro-inflammatory cytokines is associated with high levels of an anti-inflammatory cytokine Interleukin 1-receptor antagonist (Il-1ra). The reasonable conclusion is that acute inflammation associated with jawbone cavitations is under the control of high levels of RANTES/FGF-2.

As a result, to make a diagnosis, Lechner and von Baehr suggest de-emphasizing the focus on the presence of inflammation and consider the signaling pathway, primarily via over expression of RANTES/FGF-2. The high levels of RANTES/FGF-2 in cavitation patients indicates that these lesions might be causing similar and mutually reinforcing pathogenic signaling pathways to other organs.

The immune system is activated in response to danger signals, which evoke various innate molecular pathways that culminate in inflammatory cytokine production and possible activation of the adaptive immune system. This supports the idea and theory, that jaw bone cavitations may serve as a fundamental cause of chronic inflammatory diseases via RANTES/FGF-2 production.

RANTES (aka CCL5)

Jawbone cavitation lesions contain a specific cytokine profile not seen in other bone pathologies. When compared with healthy jawbone samples, cavitation pathologies continually show a strong upregulation of fibroblast growth factor (FGF-2), Interleukin 1 receptor antagonist (Il-1ra), and, of particular importance, RANTES. RANTES, also known as CCL5 (c-c motif Ligand 5) has been described as a chemotactic cytokine with a strong proinflammatory action. These chemokines have been shown to interfere in several stages of the immune response and are substantially involved in various pathological conditions and infections.

Fibroblast growth factors

The Fibroblast growth factors, FGF-2, and their associated receptors, are responsible for many crucial functions, including cell proliferation, survival, and migration. They are also susceptible to being hijacked by cancer cells and playing an oncogenic role in many cancers.

These inflammatory messengers have been implicated in many serious illnesses whether they are of an inflammatory nature or cancerous. For example,

- FGF-2 promotes tumor and cancer progression in prostate cancer.
- FGF-2 levels have shown direct correlation to the progression, metastasis and poor survival prognosis in colorectal cancer patients
- Compared to cancer-free controls, patients with gastric carcinoma have significantly higher levels of FGF-2 in their serum.

Interleukin 1 receptor antagonist (Il-1ra)

In contrast to RANTES/CCL5 and FGF-2, IL1-ra has been shown to act as a strong anti-inflammatory mediator, contributing to the lack of common inflammatory signs within some cavitation lesions.

(Why again no mention of the effect of electric fields and the rouloux phenomena?! Or impact on re-calcification?!)

(And show me a chart ((PLEASE)) of the names of the nasty bacteria found, including which ones are really bad and why.)

Pre-Surgical Protocol

Due to the scarcity of literature and clinical case reviews relating to the treatment of cavitation lesions of the jawbone, the IAOMT surveyed its membership to gather information regarding what trends and treatments are developing toward a '**standard of care**'. The survey is available on the IAOMT website.

(Would like more elaboration on the use of HBOT and avoidance of anti-biotics. Untreatable super-bugs is an issue and an exposure risk for professionals.)

(Surgery of ALL cavitation sites: The patient needs to be educated why its suboptimal to break up surgeries and perform surgery for one site at a time, and will understand clinically it is ideal for addressing all areas of disease in one surgery. See issue regarding mercury on the following page)

Remove Elements that Interfere with Healing

Pre-treatment involves

- Creating a tissue environment conducive to healing by supplying the body with adequate levels of appropriate nutrients that improve the biological terrain by optimizing homeostasis in the body.
- Minimizing levels of oxidative stress, which can not only stimulate the disease process but can interfere with the desired healing.
- Reduction of any toxic load on the body such as fluoride and/or mercury from dental amalgam fillings should be completed before treatment of jawbone cavitations.

The Toxic Load of Mercury can

- Displace iron in the electron transport chain of the mitochondria.
- Result is excess free iron (ferrous iron or Fe^{++}), producing damaging reactive oxygen species (ROS) also known as free radicals, which cause oxidative stress.
- Excess iron in bone tissue also inhibits the proper function of osteoblasts, which obviously will have a negative effect when trying to heal a bone disorder.

Adrenal and environmental stress or toxins can

- Create a deficiency of bioavailable copper, magnesium and retinol, metabolism
- Recycling of iron becomes dysregulated in the body
- Contributes to excess free iron in the wrong places
- Leads to even greater oxidative stress and the risk of disease.

More specifically,

- Many enzymes in the body (such as ceruloplasmin) become inactive when there are insufficient levels of bioavailable copper, magnesium, and retinol,
- This then perpetuates systemic iron dysregulation and the resulting increase in oxidative stress and risk of disease.

After Elements that Interfere with Healing are Removed

2-4 weeks prior to the surgery date

- **Begin taking Vitamin D3-K2 & Bone Building Supplementation** Protocol Kit.
- **Anti-Inflammatory Diet** (gluten-free, dairy-free, grain-free, sugar-free, meat-free, organic, unprocessed, highly alkalizing diet)

1 week prior to surgery

- **Ozone Injections + Procaine Injections (1st set)** into every single affected cavitation site. In addition, the injections of ozone are followed with procaine therapy injections.

Surgical Intervention

Treatment Scope - Also respondents of a 2023 member survey were asked whether they typically performed surgery on individual sites, multiple unilateral sites, or all sites in one surgery. The result was 45% individual sites, 23% multiple unilateral sites, and 32% all sites. *(Nothing further was disclosed about this treatment choice.)* (See issue on mercury)

- **Ozone Injections + Procaine Injections (2nd set)** into every single affected cavitation site. In addition, the injections of ozone are followed with procaine therapy injections. May also be mixed with sterile homeopathic compounds from Europe.
- **IV Infusion Therapy During Surgery** (High Dose Vitamin C + Glutathione + Other Vitamins/Minerals) During the surgery, we routinely administer IV Infusions with High Dose of Vitamin C during surgical procedures. Vitamin C is critical in fighting infection, helping the body heal and the formation of new tissue (which you will be doing after surgery), and fighting off infection. Our IV Infusion Therapy Nurse Team typically administers about 15-40 grams of vitamin C over 2-3 hours
- **Anesthesia** – (Local or generalized. To be completed) Treatment does involve the use of local anesthetics, which leads to an important consideration. It was previously thought that epinephrine containing anesthetics, which have known vasoconstrictive properties, should be avoided in patients who may already have compromised blood flow associated with their disease state. However, in a series of molecular studies, osteoblastic differentiation increased with the use of epinephrine. *(Poorly worded. I have another reference on this I can add.)*
- **Cavitation Surgery (Debridement)** Each surgical cavitation site will have an incision made, after which the Piezo surgical instrument will be then “dropped” into the cavitation site (the reason we use “drop” the instrument in is because the affected area is typically hollow with abnormal hollow bone or empty cysts, not normal highly dense bone so the tool typically “collapses” down into the empty pocket of abnormal/thin/hollow bone). The Piezo is the tool used to debride the infected area with copious amounts of ozone water irrigation. The Piezo is a sonic surgical diamond instrument (not a rotational burr instrument that is commonly used in surgeries and in conventional dentistry). The dead/infected bone and abnormal gooey tissue is removed until the solid, healthy bone is felt around the periphery of the lesion and clean blood exudes from the surgical site. Oily bubbles/cysts almost always float to the top of cavitation and are removed. – The site is cleaned out, debrided, and/or curetted. Rotary burs are often used to open or access the bony lesion. Most clinicians use a hand instrument to curette or scrape out the diseased bone (68%), but other techniques and tools are also utilized, such as a rotary bur (40%), a piezoelectric (ultrasonic) instrument (35%) or a ER:YAG laser (36%), which is a laser frequency used for photoacoustic streaming. *(reword)*
- **Cavitation Surgery (Ozone)** - After the surgical site is bleeding well and healthy bone is reached, we irrigate it with ozonated water, then fumigate the area with straight ozone gas (ozone is 8000x more bactericidal than chlorine).
- **Cavitation Surgery (PRF)** - PRF is then placed and packed into the surgical site to work as a framework for healthy bone to form and vascularization (blood vessel formation) to be activated. The patient’s blood (the fibrin clot) acts as the latticework for new bone to form in the newly remediated cavitation site. – healing is enhanced by placement of platelet-rich fibrin (PRF) grafts into the osseous void. The use of platelet-rich fibrin concentrates in surgical procedures is not only beneficial from a clotting standpoint, but also from the aspect of releasing growth factors over a period of up to fourteen days following surgery. Prior to the use of PRF grafts and other adjunctive therapies, relapse of the jawbone osteonecrotic lesion after surgery occurred in as many as 40% of cases. *(reword)*
- **Ozone Insufflation (Nose & Ears)** (1st set) After the sutures are then placed, and the patient relaxed for the next 40 minutes with ozone ear and nose fumigation (we call this “ozone ear and nose insufflation”). This part of the protocol is designed to fill all sinus and ear canals with a mix of ozone and oxygen, to continually fight the bacteria/infection/viruses/fungi that have

been displaced and removed by the surgery. In other words, all the pathways of the head and neck are infused with ozone to help heal and create blood flow.

- **Start Antibiotics Orally** - Required for at least 7 days after the surgery to ensure reduced inflammation and protect against potential microscopic dislodged bacterial residue in the tissues.
- **Pain Control** - Ibuprofen and Tylenol are typically adequate to control any pain 1-2 days after the surgery. Pain medication is not typically necessary after the second day after surgery.
- **Biomodulation with Dr. Tennent's Biomodulator with Infrared Therapy**
- **Significantly Reduced EMF Exposure**, especially WIFI and Bluetooth
- **Rest and Anti-Inflammatory LIQUID Diet** – The first 48 hours are CRITICAL in optimizing bone regrowth and healing. Post-Surgical

Protocol Following Surgical Intervention

1 Week Post Surgery

- **Anti-Inflammatory Diet Continues** a minimum 2 weeks post surgery (gluten free, dairy free, grain free, sugar free, meat free, organic, unprocessed, highly alkalizing diet)
- Ozone Injections Post Surgery (3rd set)
- Ozone Insufflation (Nose & Ears) (2nd set)

3 Weeks Post Surgery

- Ozone Injections + Procaine Injections Post Surgery (4th set)*
- A discussion about transitioning from the anti-inflammatory to a less restrictive diet, but still maintaining gluten-free, dairy-free and low-sugar components.
- Patients will be asked to complete a health evaluation on any changes you've experienced since the surgery – either positive or negative, in your health.

5 Weeks Post Surgery

- Ozone Injections + Procaine Injections Post Surgery (5th set)*
- Patients will be asked to complete a health evaluation on any changes you've experienced since the surgery – either positive or negative, in your health.

9-12 Months Post Surgery

- A CBCT will be taken to assess healthy bone formation in the healed surgical sites.
- Patients will be asked to complete a health evaluation on any changes you've experienced since the surgery – either positive or negative, in your health.

*For Traveling Patients the timeline for ozone injections #1-3 is condensed to 3 days and post-operative injections #4 and #5 are done with a local physician with instructions on the protocol, ozone concentration, and specificity of injection site and technique.

Long Term Post Surgical Experience

Post-Surgical Issues

The jaws have 2 specific problems with this disease:

1. Once damaged, the diseased bone is poorly able to withstand low-grade infections from tooth and gum bacteria; and

- The bone may not recover from the diminished blood flow induced by the local anesthetics used by dentists during dental work.

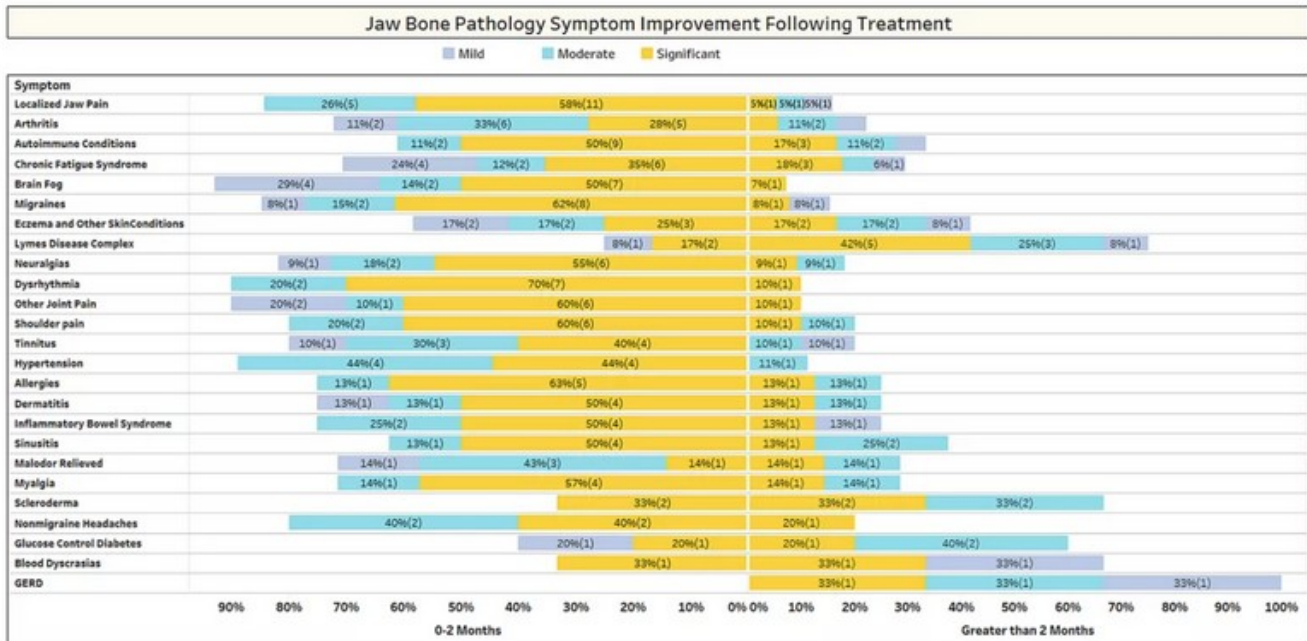
(Ok... so what is the response to this?)

Long Term Prognosis

- Any bone can be affected, but the hips, knees and jaws are most often involved in osteonecrosis
- 2/3rds of cases require the surgical removal of damaged marrow, usually by scraping with curettes. Surgery will eliminate the problem (and the pain) in almost 3/4ths of patients with jaw involvement
- Repeat surgeries, usually smaller procedures than the first, are required in 40% of patients, sometimes in other parts of the jaws, because the disease so frequently has “skip” lesions (i.e., multiple sites in the same or similar bones), with normal marrow between.
- More than half of hip patients will eventually get the disease in the opposite hip.
- More than 1/3rd of jawbone patients will get the disease in other quadrants of the jaw.
- Recently, it has been found that 40% of patients with osteonecrosis of either the hip or jaw will respond to anticoagulation with low molecular weight heparin (Lovenox) or Coumadin with resolution of pain and with bone healing.

Symptom /Systemic Relief

The member survey done in 2023 of symptom relief provided some promise of increasing the quality of life for those suffering with chronic illness. The chart may be difficult to read, but the bottom line is that most symptoms were resolved within 2 months. The 2 outliers that had most relief occurring several months after was GERD and Lyme disease. (Note sample was small)

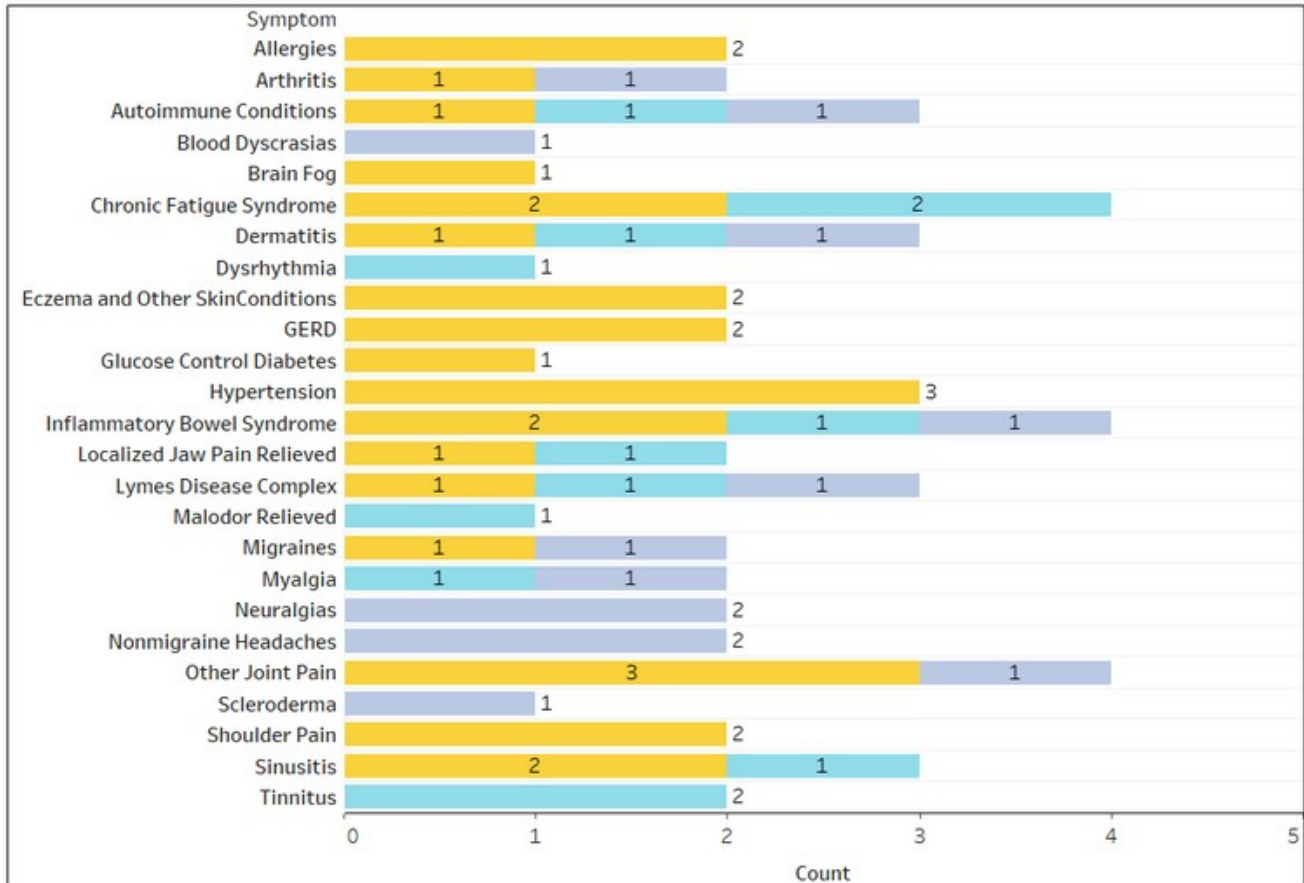


*Current research by Lechner and von Baehr has demonstrated a 26-fold increase in RANTES in the jawbone osteonecrotic lesions of breast cancer patients. Removing cavitations may be a key to

reversing inflammatory diseases. This is supported by the observation of a reduction in serum RANTES levels post-surgical intervention in 5 breast cancer patients.

Jaw Bone Pathology Symptom Improvement Following Treatment without Time Frame

■ Mild ■ Moderate ■ Significant



Alternative Treatment Strategies

Not doing cavitation surgery can entail more risks than the original infection caused. Cavitations occur when all too active bacteria *has successfully departed the original post-surgical site* and has somehow begun to impress itself into the actual jawbone.

Every additional hole created by this process is filled with decaying bone and tissue that leaves behind an ever greater potential for bacteria (and their unsavory cohorts and associated neurotoxins) to flourish and grow. Eventually, this caustic soup of poison leaks into the bloodstream, where it can cause or exaggerate other existing health issues in the body.

Alternative techniques to surgery or in addition to surgery include homeopathy, electrical stimulation, light therapy such as photobiomodulation, and laser, medical grade oxygen/ozone, hyperbaric oxygen, anticoagulation modalities, Sanum remedies, nutrition and nutraceuticals, infra-red sauna, intravenous ozone therapy, energy treatments, and others.

At this time, the science has not been conducted that would confirm these alternative forms of treatment to be either viable or ineffective. Standards of care to ensure proper healing and detoxification should be established. Protocols or procedures to help determine when treatment is appropriate and when it is not should be put forth for evaluation. This is a huge health industry problem.

Reducing Hyper-Coagulation (aside from pharmaceuticals)

If seeking a non-pharmaceutical approach for reducing the risk for hypercoagulation one can consider the use of supplemental enzymes such as nattokinase or the more powerful lumbrokinase both of which have fibrinolytic and anticoagulation properties. In addition, copper deficiency states, which are associated with coagulation dysfunction, should be ruled out because of the increased risk of hypercoagulation observed in patients with jawbone cavitations.

Conclusion

The IAOMT is of the mindset that it is generally unacceptable to leave “dead bone” in the human body. This is based on data suggesting that jawbone cavitations can be the foci for systemic cytokines and endotoxins to begin the process for degrading a patient’s overall health.

Jawbone cavitations is a disease process associated with reduced blood flow. This leads to poorly mineralization of the jawbone that can become infected with pathogens, enhancing cellular death. This then leads to challenges the delivery of antibiotics, nutrients and immune messengers. The cavitational environment leads to disastrous effects on systemic health in the rest of the body.

References

2014, 2017 and 2024 Position Paper on Cavitations by IAOMT

IAOMT - Who are they...International Academy of Oral Medicine and Toxicology. A non-profit organization of biological dentists, physicians and researchers who promote safer dentistry and a healthier world.

How Was This Position Paper Created?

A task force with over a dozen expert reviewers and a literature review from the past 165 years. This paper is periodically updated and the first draft of this document was in 2014. An honorable mention is deserved for the invaluable contributions and effort made by Dr. Stuart Nunnally in compiling the originating 2014 position paper.

Where can I find the original document: <https://iaomt.org/resources/position-papers/iaomt-jawbone-cavitations-position-paper/>

References:

<https://iaomt.org/resources/position-papers/iaomt-jawbone-cavitations-position-paper/#4de046e22f799a1fa>

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4. Kim, Chang & Hwang, Kyung-Gyun & Park, Chang-Joo. (2018). Local anesthesia for mandibular third molar extraction. Journal of Dental Anesthesia and Pain Medicine. 18. 287. 10.17245/jdapm.2018.18.5.287.
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Appendix – Other Definitions of Osteo-Necrosis

For the purpose of this exploratory article, Ischemic Bone Disease will be interchangeable with IBD / CIBD / cavitation / jaw bone infection / FDOJ / NICO, which are the most common definitions.

Depending on the severity and extent of the disease process, various names have been used to describe pathological changes that can occur such as: (See spreadsheet... that list is RIDICULOUS!)